

09/979,453  
L/COD/C 1/11/05

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(FILE 'HOME' ENTERED AT 11:32:09 ON 11 JAN 2005)

FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT, JAPIO' ENTERED AT  
11:32:37 ON 11 JAN 2005

L1 129 S (FLUID FLOW CHANNEL)  
L2 0 S L1 AND (MULTIPLE DETECT?)  
L3 14 S L1 AND DETECT?  
L4 13 DUPLICATE REMOVE L3 (1 DUPLICATE REMOVED)  
L5 0 S L4 AND MULTIPL?  
L6 1 S L4 AND PLURALI?  
L7 6972 S MICROFLUIDIC?  
L8 5 S L7 AND (MULTIPLE DETECT?)  
L9 3 DUPLICATE REMOVE L8 (2 DUPLICATES REMOVED)

FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT, JAPIO' ENTERED AT  
11:55:00 ON 11 JAN 2005

L10 6972 S MICROFLUIDIC?  
L11 0 S L10 AND (DUAL DETECTOR?)  
L12 352 S L10 AND DETECTOR?  
L13 14 S L12 AND VELOCIT?  
L14 11 DUPLICATE REMOVE L13 (3 DUPLICATES REMOVED)

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L9 3 DUPLICATE REMOVE L8 (2 DUPLICATES REMOVED)

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ANSWER 3 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1

AN 2001:162337 CAPLUS

ED Entered STN: 08 Mar 2001

TI Velocity measurement of particles flowing in a **microfluidic** chip  
using Shah convolution Fourier transform detection

AU Kwok, Yien C.; Jeffery, Nicholas T.; Manz, Andreas

CS Department of Chemistry, AstraZeneca/SmithKline Beecham Centre for  
Analytical Sciences Imperial College of Science Technology and Medicine,  
London, SW7 2AY, UK

SO Analytical Chemistry ~~(2001)~~ 73(8), 1748-1753

CODEN: ANCHAM; ISSN: 0003-2700

PB American Chemical Society

DT Journal

LA English

AB A noninvasive radiative technique, based on Shah convolution Fourier  
transform detection, for velocity measurement of particles in fluid flows  
in a **microfluidic** chip, is presented. It boasts a simpler  
instrumental setup and optical alignment than existing measurement methods  
and a wide dynamic range of velocities measurable. A glass-PDMS microchip  
with a layer of patterned Cr to provide **multiple**  
**detection** windows which are 40  $\mu\text{m}$  wide and 70  $\mu\text{m}$  apart is  
employed. The velocities of fluorescent microspheres, which were  
electrokinetically driven in the channel of the **microfluidic**  
chip, were determined. The effects of increasing the number of detection  
windows

and sampling period were investigated. This technique could have wide  
applications, ranging from the determination of the velocity of particles in  
pressure-driven flow to the measurement of electrophoretic mobilities of  
single biol. cells.

date no 9004

ANSWER 3 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1

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and sampling period were investigated. This technique could have wide  
applications, ranging from the determination of the velocity of particles in  
pressure-driven flow to the measurement of electrophoretic mobilities of  
single biol. cells.

ANSWER 1 OF 3 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on STN  
AN 2003:227200 BIOSIS  
DN PREV200300227200  
TI Ultra high throughput **microfluidic** analytical systems and methods.  
AU Kopf-Sill, Anne R. [Inventor, Reprint Author]; Chow, Andrea W. [Inventor]; Jann, Peter C. [Inventor]; Jensen, Morten J. [Inventor]; Spaid, Michael [Inventor]; Kennedy, Colin B. [Inventor]; Kennedy, Michael J. [Inventor]  
CS Santa Clara, CA, USA  
ASSIGNEE: Caliper Technologies Corp.  
PI US 6547941 April 15, 2003  
SO Official Gazette of the United States Patent and Trademark Office Patents, (Apr 15 2003) Vol. 1269, No. 3. <http://www.uspto.gov/web/menu/patdata.html> . e-file.  
ISSN: 0098-1133 (ISSN print).  
DT Patent  
LA English  
ED Entered STN: 7 May 2003  
Last Updated on STN: 7 May 2003  
AB Analytical systems and methods that use a modular interface structure for providing an interface between a sample substrate and an analytical unit, where the analytical unit typically has a particular interface arrangement for implementing various analytical and control functions. Using a number of variants for each module of the modular interface structure advantageously provides cost effective and efficient ways to perform numerous tests using a particular substrate or class of substrates with a particular analytical and control systems interface arrangement. Improved optical illumination and detection system for simultaneously analyzing reactions or conditions in multiple parallel microchannels are also provided. Increased throughput and improved emissions detection is provided by the present invention by simultaneously illuminating multiple parallel microchannels at a non-normal incidence using an excitation beam including multiple excitation frequencies, and simultaneously detecting emissions from the substances in the microchannels in a direction normal to the substrate using a detection module with **multiple detectors**.  
NCL 204452000  
CC Biochemistry studies - General 10060  
IT Major Concepts  
Chemistry; Methods and Techniques  
IT Methods & Equipment  
high throughput **microfluidic** analytical systems: laboratory equipment; ultra high throughput **microfluidic** analytical methods: laboratory techniques

✓ pull patent  
filing date -

ANSWER 2 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:174333 CAPLUS

DN 138:201292

ED Entered STN: 07 Mar 2003

TI Analysis using a distributed sample

IN Matson, Robert S.

PA USA

SO U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM C12Q001-68

ICS G01N033-53; G01N033-542

NCL 435006000; 435007900

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 3, 15

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003044799	A1	20030306	US 2001-945145	20010831
PRAI	US 2001-945145			20010831	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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US 2003044799	ICM	C12Q001-68
	ICS	G01N033-53; G01N033-542
	NCL	435006000; 435007900

AB The present invention is directed to the production of a sample microarray for use in detecting one or more target biopolymers in the sample. The sample microarray of this invention is formed by distributing equivalent amts. of a single sample at **discrete**, spatially defined **locations** on a substrate. Each site in the microarray, thus, has the same composition of target biopolymers. The microarray is then interrogated by one or more probes specific for one or more the target biopolymers.

ST microarray detecting target biopolymer

IT Functional groups

(Alkanethiol; anal. using distributed sample)

IT Printing (impact)

(Capillary quill contact; anal. using distributed sample)

IT Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)

(Carboxylated; anal. using distributed sample)

IT Polymers, uses

RL: DEV (Device component use); USES (Uses)

(Crosslinked; anal. using distributed sample)

IT Adhesives

(Die-cut; anal. using distributed sample)

IT Antibodies and Immunoglobulins

RL: ANT (Analyte); ANST (Analytical study)

(IgG; anal. using distributed sample)

IT Printing (impact)

(**Microfluidic**-based; anal. using distributed sample)

IT Materials

(Nonporous metallic; anal. using distributed sample)

IT Apparatus

(Planar; anal. using distributed sample)

IT Apparatus

(Radio frequency transmitters; anal. using distributed sample)

IT Biochemical molecules

(Radioactive-labeled; anal. using distributed sample)

IT Molecules

(Radioluminescent; anal. using distributed sample)

ANSWER 2 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:174333 CAPLUS  
DN 138:201292  
ED Entered STN: 07 Mar 2003  
TI Analysis using a distributed sample  
IN Matson, Robert S.  
PA USA  
SO U.S. Pat. Appl. Publ., 11 pp.  
CODEN: USXXCO  
DT Patent  
LA English  
IC ICM C12Q001-68  
ICS G01N033-53; G01N033-542  
NCL 435006000; 435007900  
CC 9-1 (Biochemical Methods)  
Section cross-reference(s): 3, 15

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CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003044799	ICM	C12Q001-68
	ICS	G01N033-53; G01N033-542
	NCL	435006000; 435007900

AB The present invention is directed to the production of a sample microarray for use in detecting one or more target biopolymers in the sample. The sample microarray of this invention is formed by distributing equivalent amts. of a single sample at **discrete**, spatially defined **locations** on a substrate. Each site in the microarray, thus, has the same composition of target biopolymers. The microarray is then interrogated by one or more probes specific for one or more the target biopolymers.

ST microarray detecting target biopolymer

IT Functional groups

(Alkanethiol; anal. using distributed sample)

IT Printing (impact)

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IT Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)

(Carboxylated; anal. using distributed sample)

IT Polymers, uses

RL: DEV (Device component use); USES (Uses)

(Crosslinked; anal. using distributed sample)

IT Adhesives

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IT Antibodies and Immunoglobulins

RL: ANT (Analyte); ANST (Analytical study)

(IgG; anal. using distributed sample)

IT Printing (impact)

(**Microfluidic**-based; anal. using distributed sample)

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IT Apparatus

(Planar; anal. using distributed sample)

IT Apparatus

(Radio frequency transmitters; anal. using distributed sample)

IT Biochemical molecules

(Radioactive-labeled; anal. using distributed sample)

IT Molecules

(Radioluminescent; anal. using distributed sample)

IT Printing (impact)  
(Solid pin; anal. using distributed sample)

IT Materials  
(Surface modified; anal. using distributed sample)

IT Materials  
(Surface-modified; anal. using distributed sample)

IT Acid halides  
RL: ANT (Analyte); ANST (Analytical study)  
(acid fluorides; anal. using distributed sample)

IT DNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(amplified; anal. using distributed sample)

IT Absorption

Adsorption

Amino group

Animal tissue

Bar code labels

Carboxyl group

Cell

Ceramics

Chemiluminescent substances

Composition

Concentration (condition)

DNA microarray technology

Drugs

Dyes

Filaments

Films

Flow

Fluids

Fluorescent indicators

Foams

Functional groups

Gels

Heating

Human

Hydroxyl group

Immobilization, molecular or cellular

Ink-jet printing

Magnetic particles

Membranes, nonbiological

Microarray technology

Microtiter plates

Nucleic acid hybridization

Particles

Plates

Protein microarray technology

Quantum dot devices

Samples

Solenoids

Surface area

Threads

Wells

Wetting  
(anal. using distributed sample)

IT Biopolymers

Nucleic acids

Organic compounds, analysis

Proteins  
RL: ANT (Analyte); ANST (Analytical study)  
(anal. using distributed sample)

IT Printing (impact)  
(Solid pin; anal. using distributed sample)

IT Materials  
(Surface modified; anal. using distributed sample)

IT Materials  
(Surface-modified; anal. using distributed sample)

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RL: ANT (Analyte); ANST (Analytical study)  
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IT Absorption

Adsorption

Amino group

Animal tissue

Bar code labels

Carboxyl group

Cell

Ceramics

Chemiluminescent substances

Composition

Concentration (condition)

DNA microarray technology

Drugs

Dyes

Filaments

Films

Flow

Fluids

Fluorescent indicators

Foams

Functional groups

Gels

Heating

Human

Hydroxyl group

Immobilization, molecular or cellular

Ink-jet printing

Magnetic particles

Membranes, nonbiological

Microarray technology

Microtiter plates

Nucleic acid hybridization

Particles

Plates

Protein microarray technology

Quantum dot devices

Samples

Solenoids

Surface area

Threads

Wells

Wetting  
(anal. using distributed sample)

IT Biopolymers

Nucleic acids

Organic compounds, analysis

Proteins  
RL: ANT (Analyte); ANST (Analytical study)  
(anal. using distributed sample)

IT Carbohydrates, analysis  
Peptide nucleic acids  
Polynucleotides  
Receptors  
cDNA  
mRNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(anal. using distributed sample)

IT Antibodies and Immunoglobulins  
Antigens  
Coordination compounds  
Enzymes, uses  
Haptens  
Ligands  
Probes (nucleic acid)  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(anal. using distributed sample)

IT Epoxides  
Esters, uses  
Glass, uses  
Polyamides, uses  
RL: DEV (Device component use); USES (Uses)  
(anal. using distributed sample)

IT Spheres  
(beads, Dye-labeled; anal. using distributed sample)

IT Spheres  
(beads; anal. using distributed sample)

IT Bond  
(covalent; anal. using distributed sample)

IT DNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(double-stranded; anal. using distributed sample)

IT Antibodies and Immunoglobulins  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(fragments; anal. using distributed sample)

IT Standard substances, analytical  
(internal; anal. using distributed sample)

IT Porous materials  
(metallic; anal. using distributed sample)

IT Peptides, analysis  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(polypeptides; anal. using distributed sample)

IT Printing (nonimpact)  
(silk-screen; anal. using distributed sample)

IT DNA  
RNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(single-stranded; anal. using distributed sample)

IT Laboratory ware  
(slides; anal. using distributed sample)

IT Containers  
(troughs; anal. using distributed sample)

IT 58-85-5, Biotin  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(anal. using distributed sample)

IT Carbohydrates, analysis  
Peptide nucleic acids  
Polynucleotides  
Receptors  
cDNA  
mRNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(anal. using distributed sample)

IT Antibodies and Immunoglobulins  
Antigens  
Coordination compounds  
Enzymes, uses  
Haptens  
Ligands  
Probes (nucleic acid)  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(anal. using distributed sample)

IT Epoxides  
Esters, uses  
Glass, uses  
Polyamides, uses  
RL: DEV (Device component use); USES (Uses)  
(anal. using distributed sample)

IT Spheres  
(beads, Dye-labeled; anal. using distributed sample)

IT Spheres  
(beads; anal. using distributed sample)

IT Bond  
(covalent; anal. using distributed sample)

IT DNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(double-stranded; anal. using distributed sample)

IT Antibodies and Immunoglobulins  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(fragments; anal. using distributed sample)

IT Standard substances, analytical  
(internal; anal. using distributed sample)

IT Porous materials  
(metallic; anal. using distributed sample)

IT Peptides, analysis  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(polypeptides; anal. using distributed sample)

IT Printing (nonimpact)  
(silk-screen; anal. using distributed sample)

IT DNA  
RNA  
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(single-stranded; anal. using distributed sample)

IT Laboratory ware  
(slides; anal. using distributed sample)

IT Containers  
(troughs; anal. using distributed sample)

IT 58-85-5, Biotin  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)  
(anal. using distributed sample)

IT 7440-57-5, Gold, uses 7631-86-9, Silica, uses 9002-88-4, Polyethylene  
9003-01-4, Polyacrylic acid 9003-07-0, Polypropylene 9003-53-6,  
Polystyrene 9004-70-0, Nitrocellulose 24937-79-9D, Polyvinylidene  
fluoride, Carboxylated  
RL: DEV (Device component use); USES (Uses)  
(anal. using distributed sample)

IT 64-17-5, Ethanol, uses 64-19-7, Acetic acid, uses 67-56-1, Methanol,  
uses 67-63-0, Isopropanol, uses 78-92-2, 2-Butanol 9042-14-2,  
Dextran sulfate  
RL: NUU (Other use, unclassified); USES (Uses)  
(anal. using distributed sample)

IT 7440-57-5, Gold, uses 7631-86-9, Silica, uses 9002-88-4, Polyethylene  
9003-01-4, Polyacrylic acid 9003-07-0, Polypropylene 9003-53-6,  
Polystyrene 9004-70-0, Nitrocellulose 24937-79-9D, Polyvinylidene  
fluoride, Carboxylated  
RL: DEV (Device component use); USES (Uses)  
(anal. using distributed sample)

IT 64-17-5, Ethanol, uses 64-19-7, Acetic acid, uses 67-56-1, Methanol,  
uses 67-63-0, Isopropanol, uses 78-92-2, 2-Butanol 9042-14-2,  
Dextran sulfate  
RL: NUU (Other use, unclassified); USES (Uses)  
(anal. using distributed sample)

ANSWER 3 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:183707 CAPLUS

DN 130:317031

ED Entered STN: 22 Mar 1999

TI MEMS based micro-fluidic system for chromatographic analysis of liquid samples

AU Golubovic, Nevenka C.; Kang, Qinghua; Henderson, H. Thurman; Pinto, Neville

CS Center for Microelectronic Sensors, CMSM, Cincinnati, OH, 45221-0030, USA

SO Proceedings of SPIE-The International Society for Optical Engineering (1998), 3515(Microfluidic Devices and Systems), 86-93

CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 66-4 (Surface Chemistry and Colloids)

Section cross-reference(s): 47, 79, 80

AB A complete micro-chromatog. system has been designed on a (110) silicon chip and the column-detector sub-system has been demonstrated. This micro-configuration allows the active surface-to-cross sectional area to be maximized, consistent with fabrication and pressure drop issues. A separation column was designed as an array of parallel channels anisotropically etched in (110) silicon to reduce pressure drop and to provide a necessary large surface area at a short length. Sensing was done by use of integrated impedance electrodes, with the detector cell volume less than 1 nl, although integrated optical detection has also been initiated. The response time is improved by about two orders of magnitude (relative to traditional systems) and simultaneous multiple anal. capability is realized with this design. Fabrication of multiple impedance detectors at different locations along the length of a micro-channel will enable monitoring of the separation in progress. Although the present work supports only a linear column configuration, a serpentine version would consume only about one square millimeter of a chip area, thus further minimizing the device.

ST MEMS microfluidic system open tubular liq chromatog

IT Liquid chromatography

Sensors

(MEMS based micro-fluidic system for chromatog. anal. of liquid samples)

IT 7440-21-3, Silicon, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(miniature liquid chromatog. device fabricated on a silicon chip)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Guiochon, G; Analytical Chemistry 1981, V53, P1318 CAPLUS

(2) Ishii, D; Advances in Chromatography 1983, V21, P131 CAPLUS

(3) Manz, A; Sens Actuators 1990, VB1, P249 CAPLUS

(4) Ocvirk, G; Proc Transducers '95 1995, P756

(5) Reston, R; IEEE J Microelectromech Syst 1994, V3(4), P134 CAPLUS

(6) Reston, R; IEEE J Microelectromech Syst 1994, V3(4), P147

(7) Terry, S; IEEE Trans Electron Devices 1979, VED-26(12), P1880 CAPLUS

(8) Tijssen, R; J of Chromatography 1981, V218, P137 CAPLUS